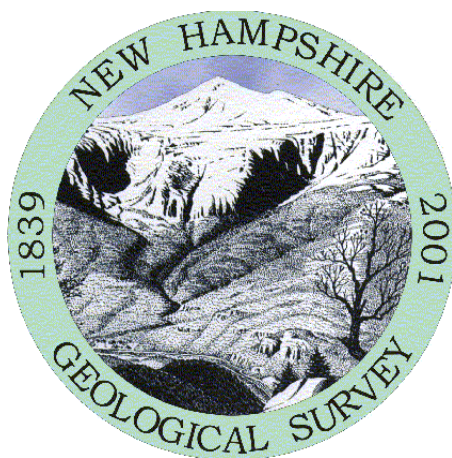


New Hampshire Groundwater Level Monitoring

July, 2020



**New Hampshire Geological Survey
29 Hazen Drive, PO Box 95
Concord, New Hampshire 03302-0095**

August 6, 2020

GROUNDWATER CONDITIONS SUMMARY

According to the [Northeast Regional Climate Center](#) (NRCC) at Cornell University, New Hampshire received an average of 4.20 inches of precipitation during the month of July, which is -0.18 inches below normal or 96% of normal based on the 1981-2010 precipitation records. Although precipitation was evenly distributed across the northern and southern portions of the state (Figure 1), the percent normal precipitation map for July 2020 shows that distribution was highly variable (Figure 2).



Figure 1. Northern (1) and Southern (2) portions of NH, courtesy of NRCC.

As of July 30th, southern New Hampshire remains in moderate drought (47.76% of the state) according to the [United States Drought Monitor](#) (Figure 3). Since moderate drought in New Hampshire began on June 23rd, drought and abnormally dry conditions have been declining steadily. Parts of Cheshire and Hillsboro counties are now free from drought, although they remain abnormally dry, and the northern part of the state is now free from abnormally dry conditions. The percent area experiencing moderate drought in New Hampshire has decreased from 49.33% since last week and from 72.32% since June 23rd.

Figures 2 and 3 shows the monthly status of groundwater levels for both bedrock and overburden wells in the network. Only wells with a period of record (POR) 10 years or more are placed within statistical categories of low through high (symbols red through blue, respectively). Bedrock wells are installed into bedrock and overburden wells are installed in the unconsolidated materials above bedrock.

The majority of the state is experiencing below normal to low groundwater levels. Exceptions include normal conditions in Albany, Barnstead, Greenfield, New London, Ossipee, and the two bedrock wells in Concord. Groundwater levels in Albany and New London have risen to normal, and levels in Campton, Nashua, and New Durham have risen from low to below normal. Levels in Epping and Deerfield have fallen from normal to below normal. All but one of the monitoring wells in the network (CVWB-01 in Concord) are below their monthly average over their POR (Table 1). For the majority of them, this is the third month of negative departures. Groundwater levels fell in May and June due to a below-average amount of precipitation ([see precipitation figures here](#)). Precipitation has been especially low in the watersheds upstream of the overburden wells in Newport and Lancaster, which have had below normal water levels for over a year.

The New Hampshire Geological Survey's groundwater monitoring network (Figures 2 and 3) currently includes 11 bedrock and 20 overburden observation wells, all of which are measured monthly by hand. Using the monthly hand readings, monthly averages and percentile statistics were calculated and are summarized in Figures 2 and 3, the following hydrographs*, and in Table 1.

*The hydrographs show the following data over a period of 12 months: (1) monthly groundwater depths in red, (2) the monthly average over the period of record (POR) of the well in black, and (3) color-coded statistical ranges over the POR of the well. Note the POR is listed below each month's column on the chart and reported as the number of measurements for that respective month. This might include multiple readings in the same month and does not include any gaps in data so therefore may not represent a continuous period.

July 2020 Groundwater Levels and July Precipitation (percent normal)

Counties

Well Type

○ Overburden

◇ Bedrock

Monthly Status

High

Above normal

Normal

Below Normal

Low

Not Analyzed

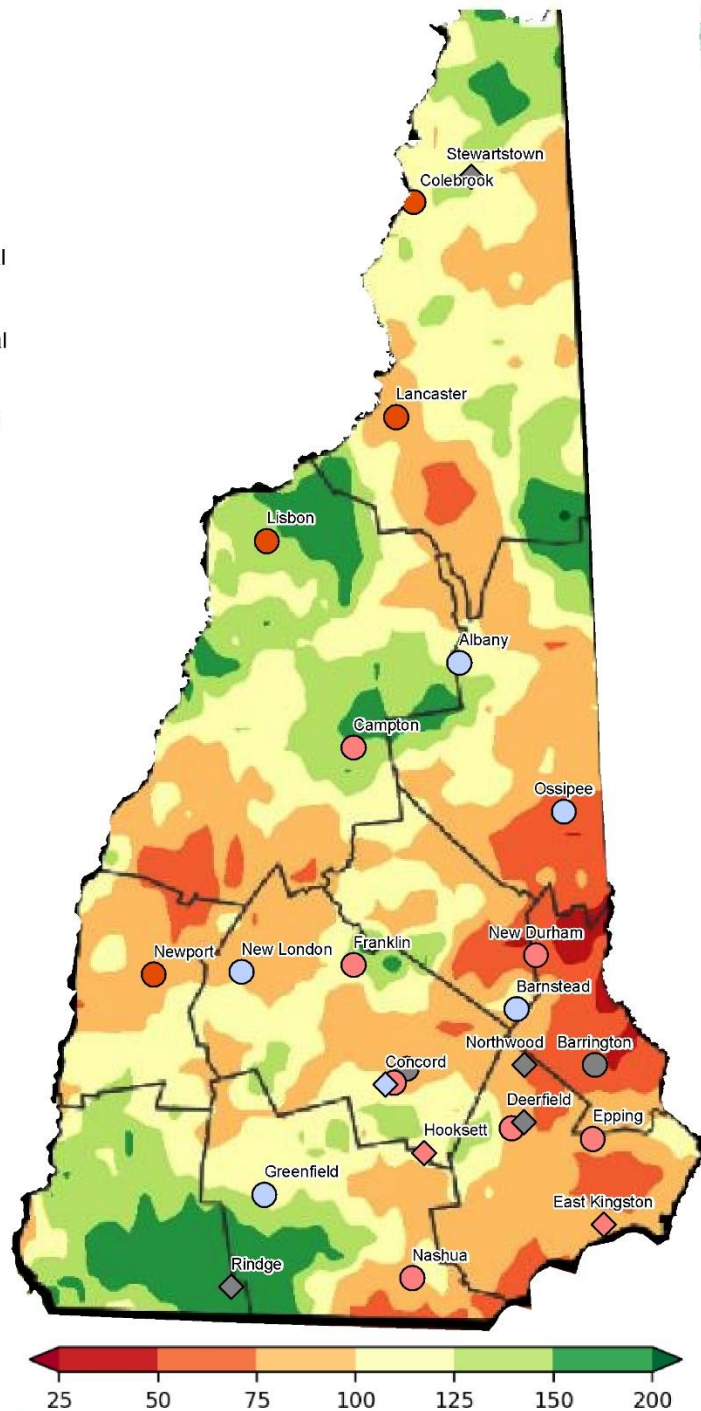
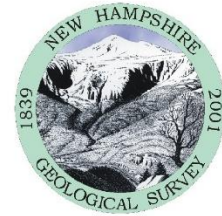


Figure 2. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and percent normal precipitation map for July 2020 ([Northeast Regional Climate Center](#)).

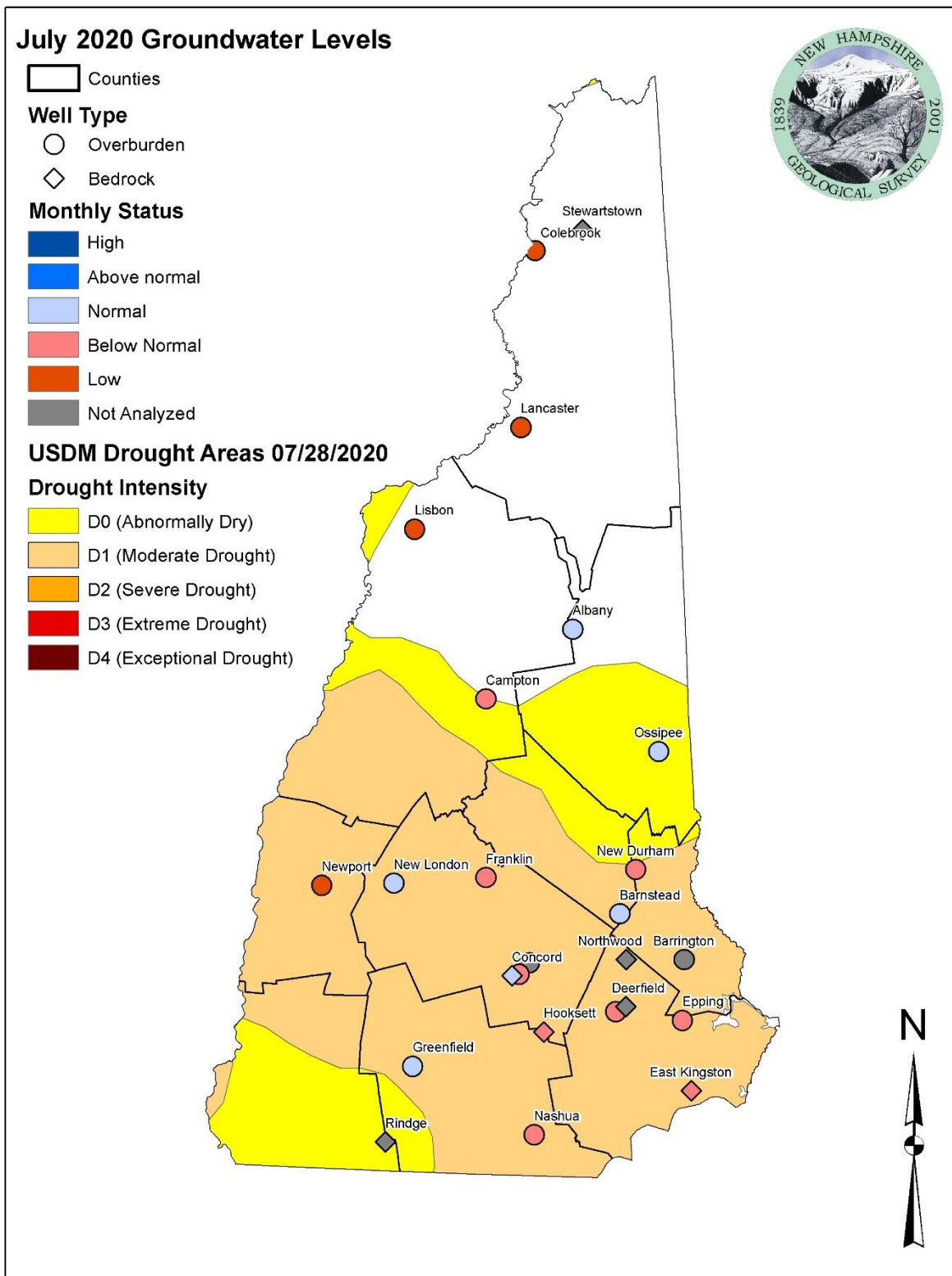
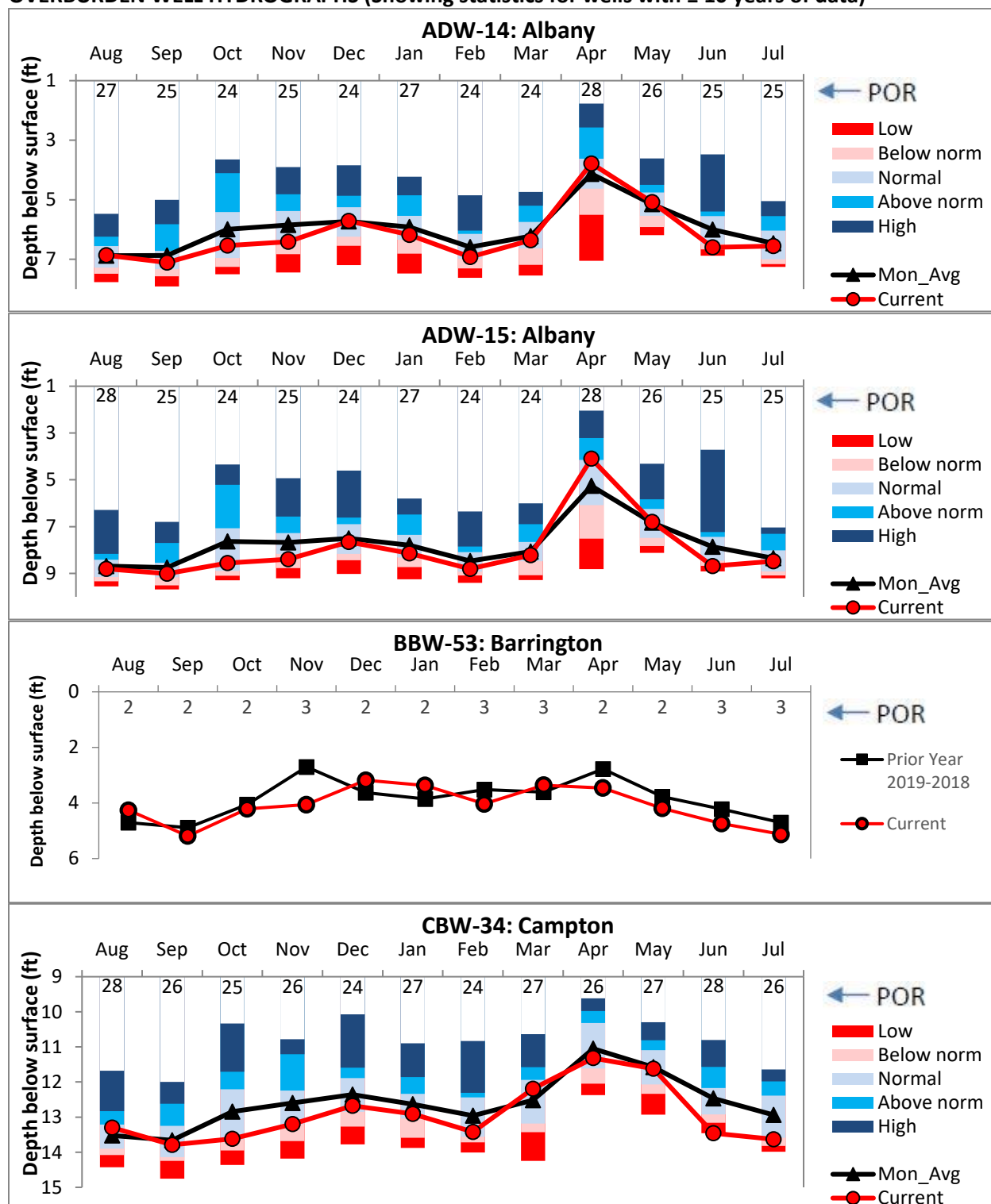
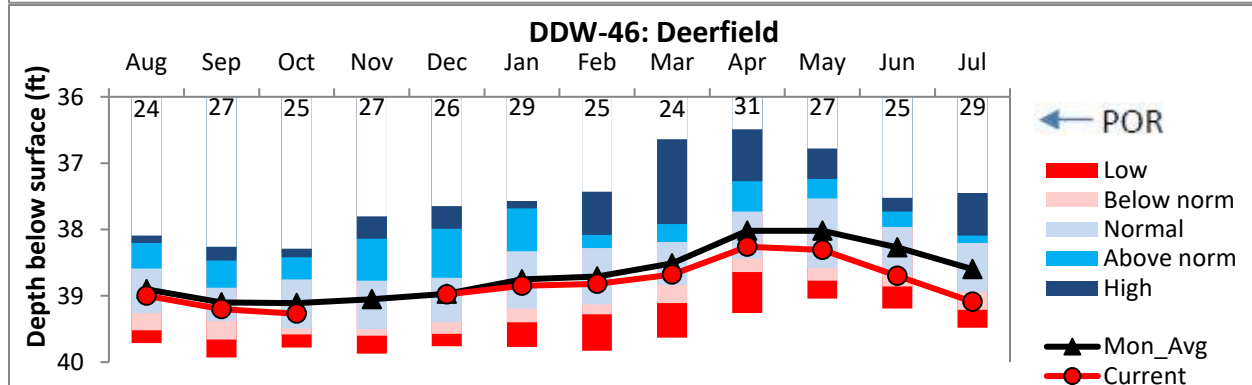
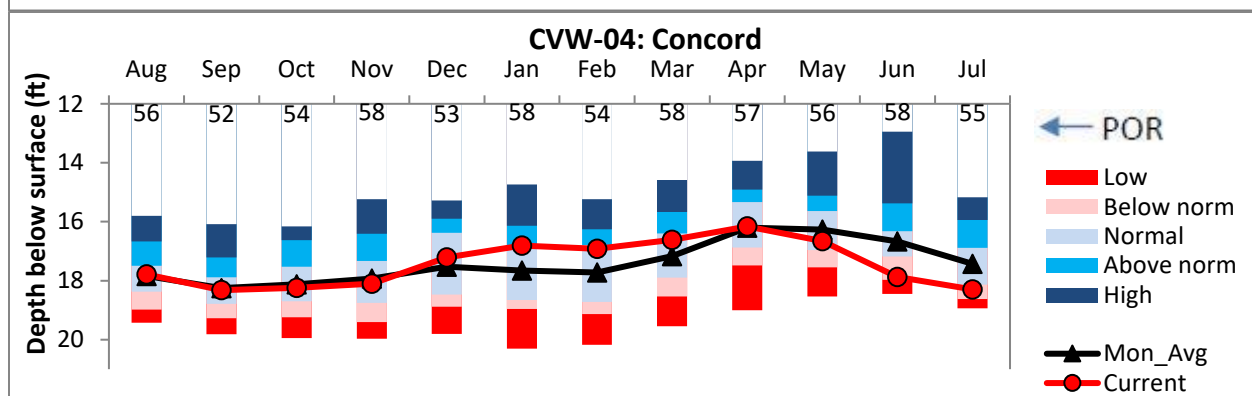
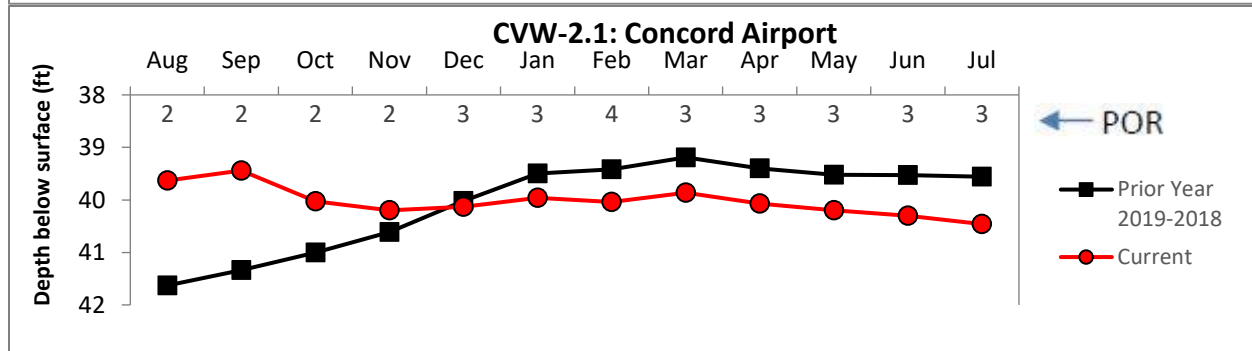
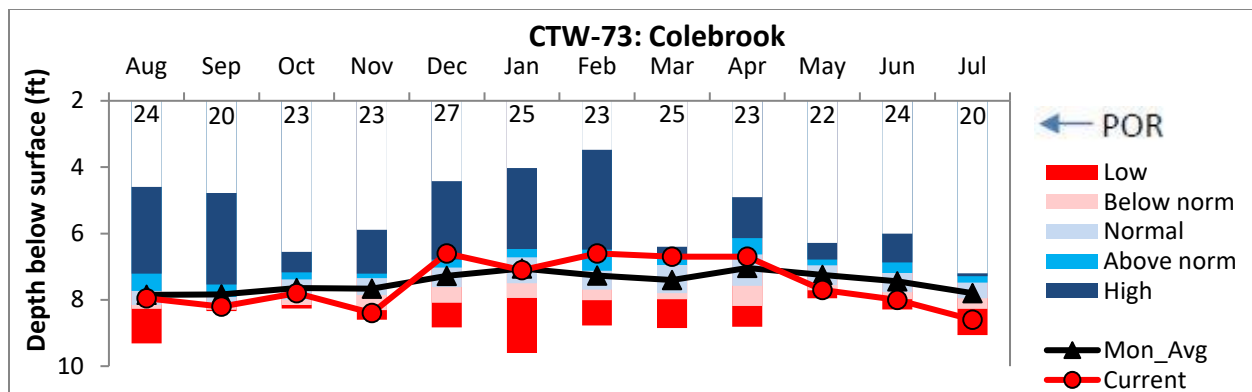
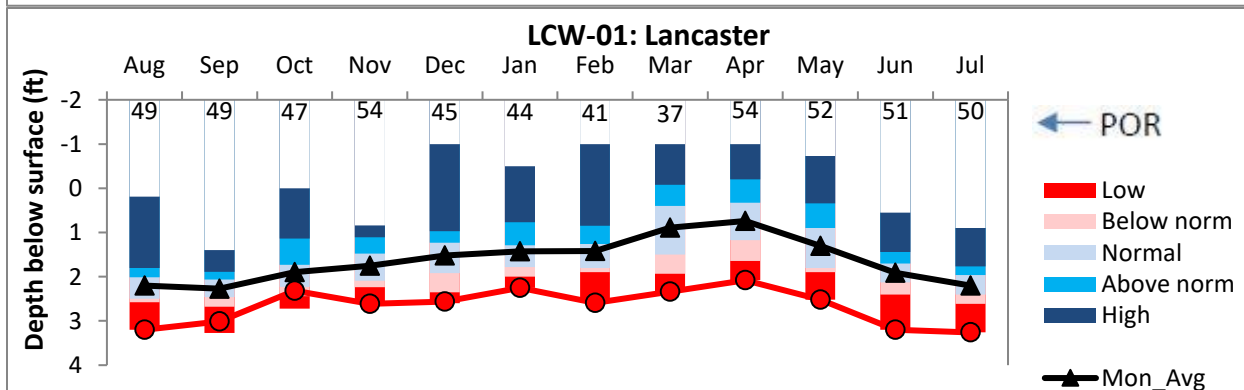
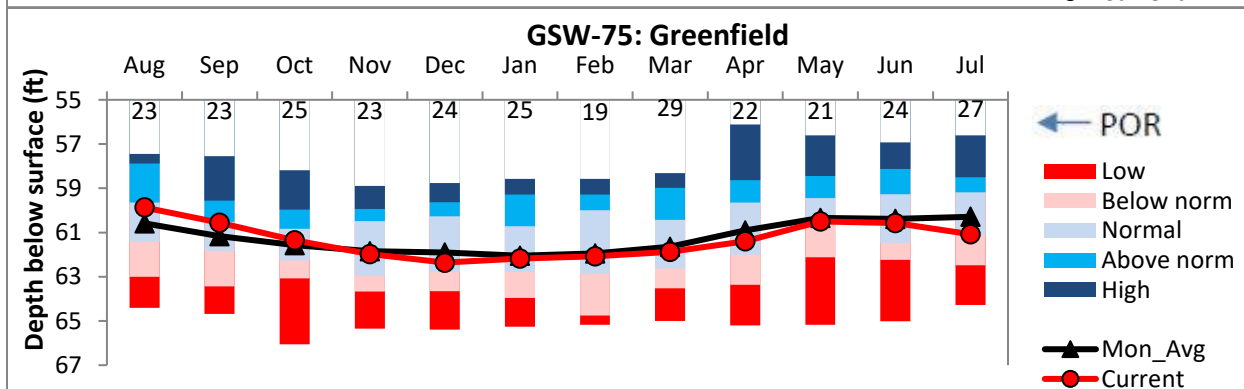
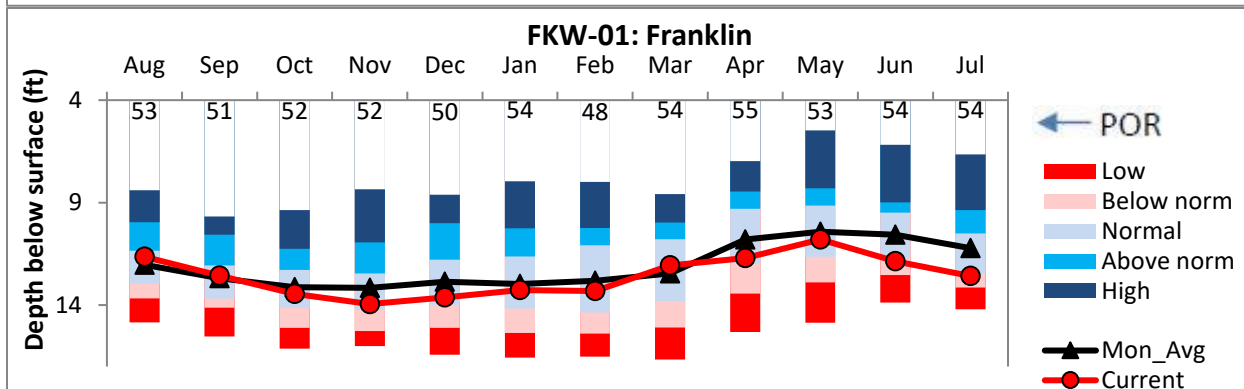
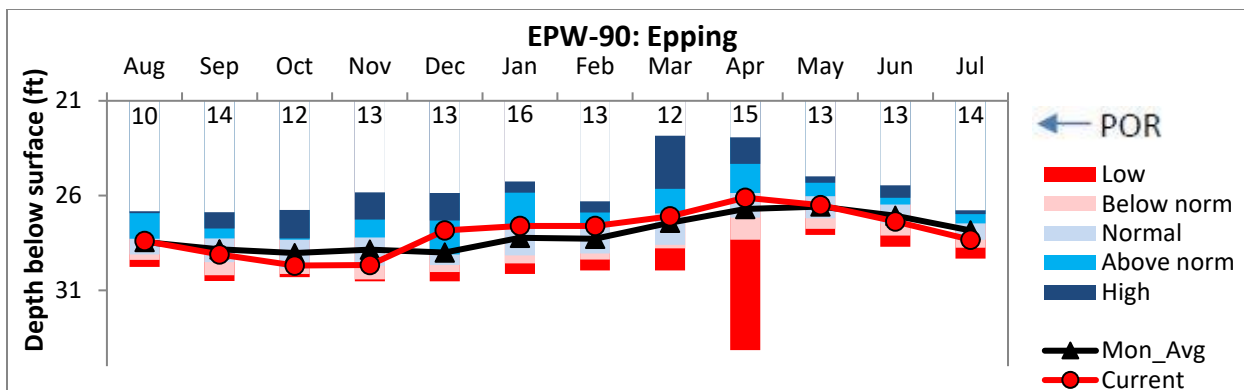


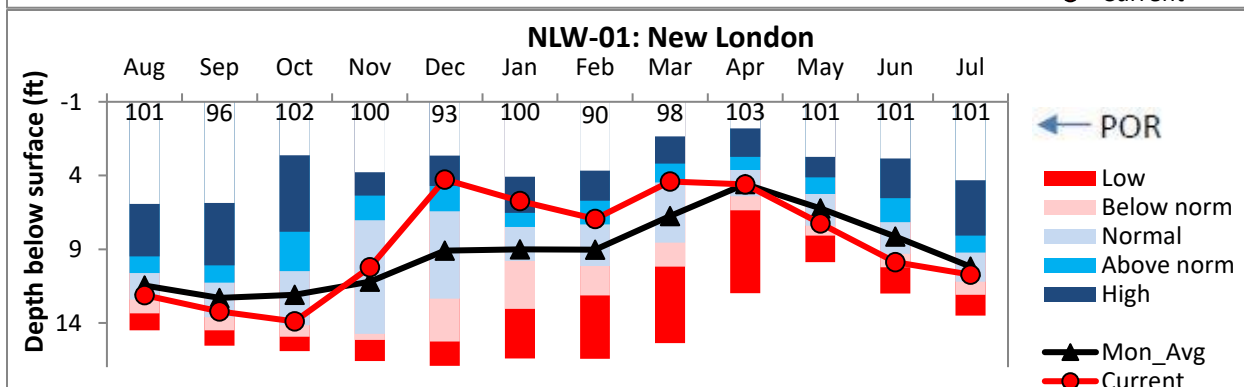
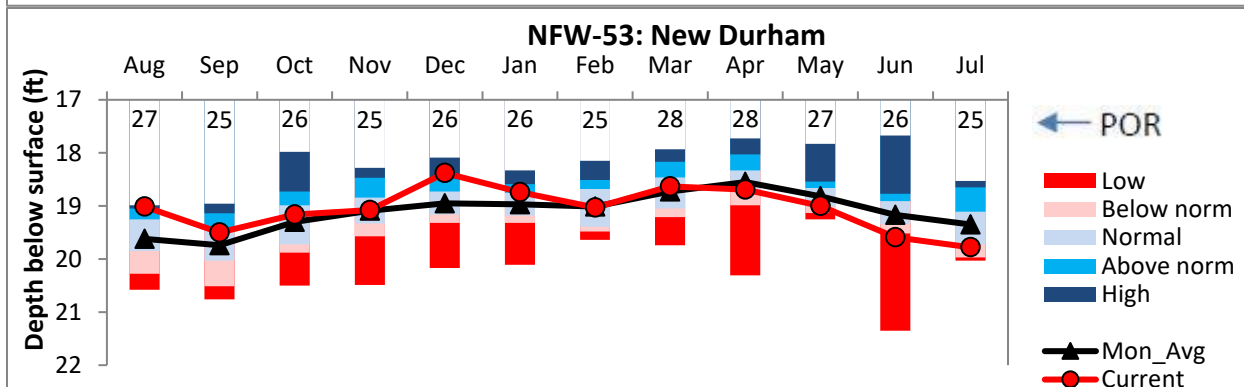
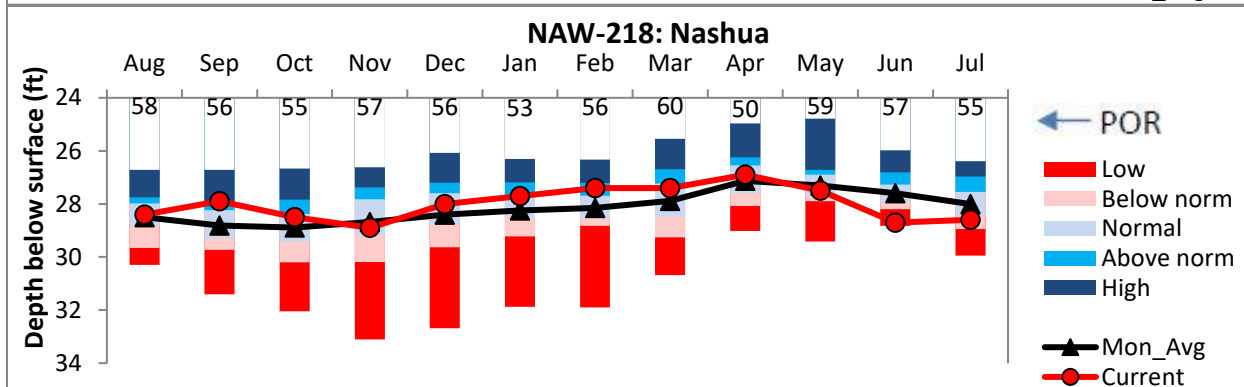
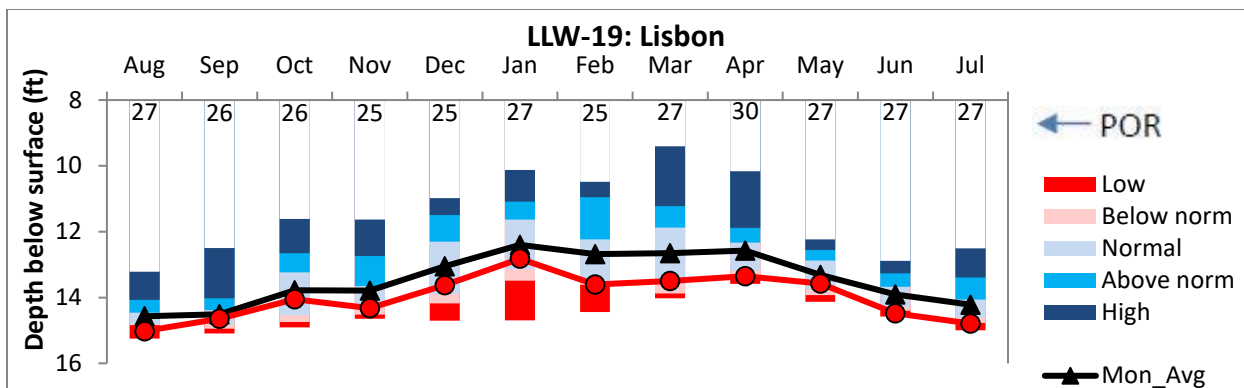
Figure 3. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and drought areas according to the [U.S. Drought Monitor](#) on July 30th, 2020.

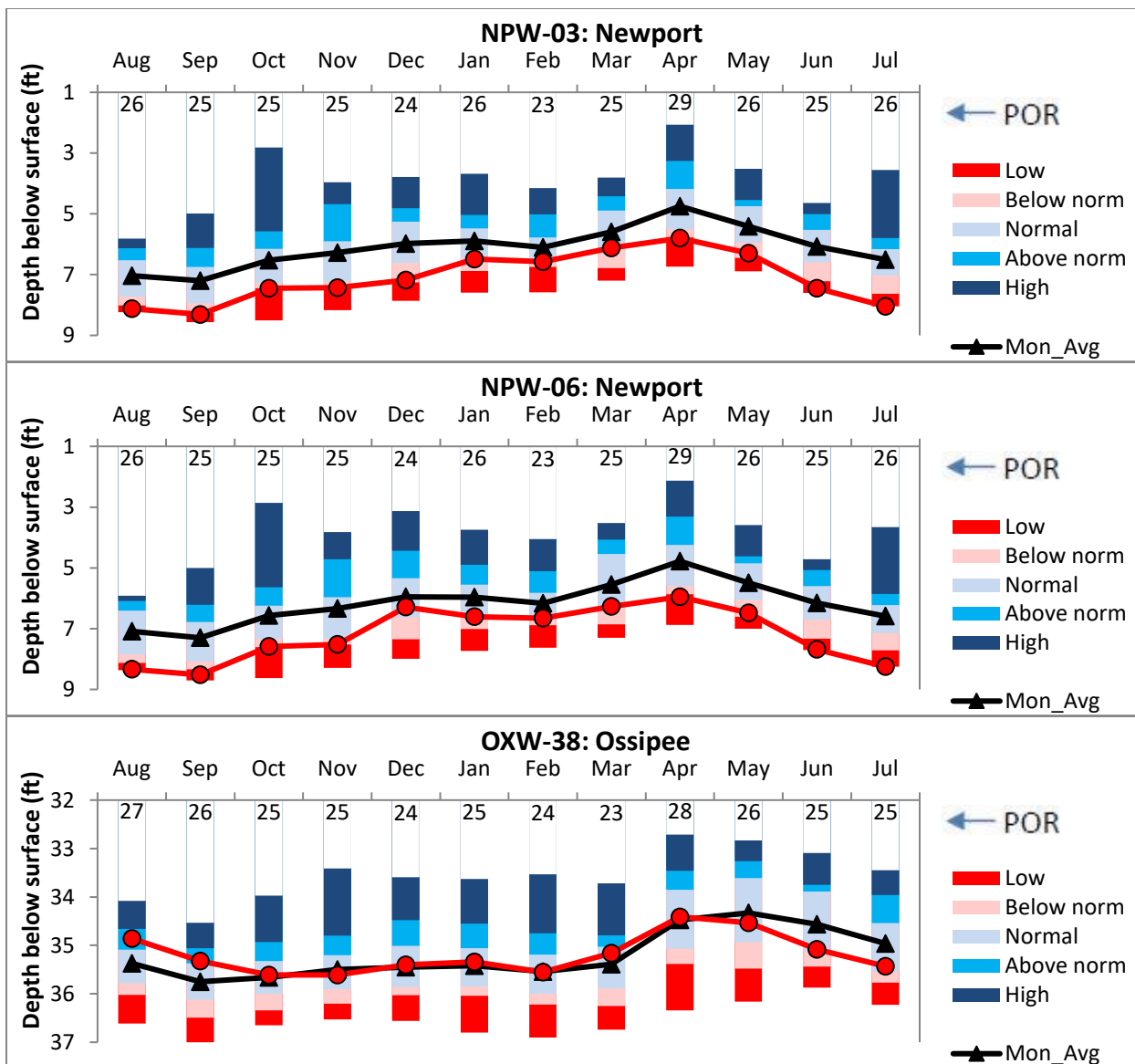
OVERBURDEN WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)



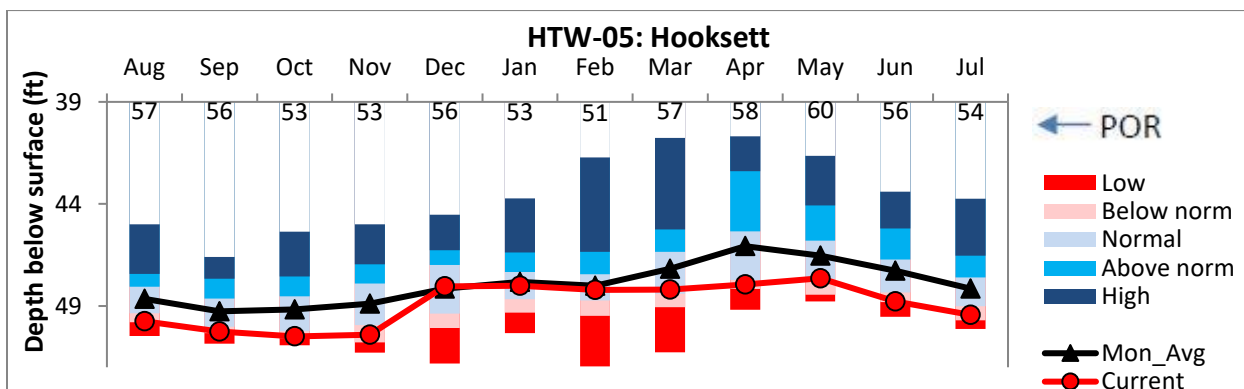


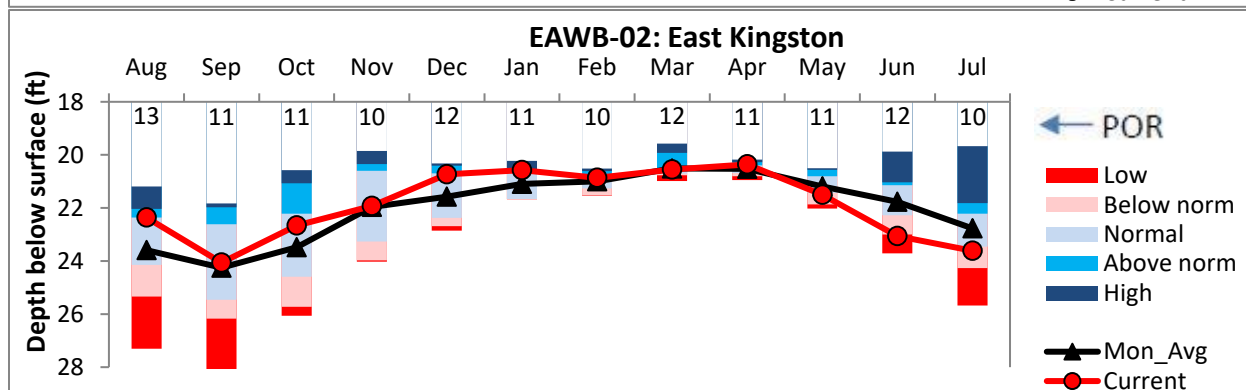
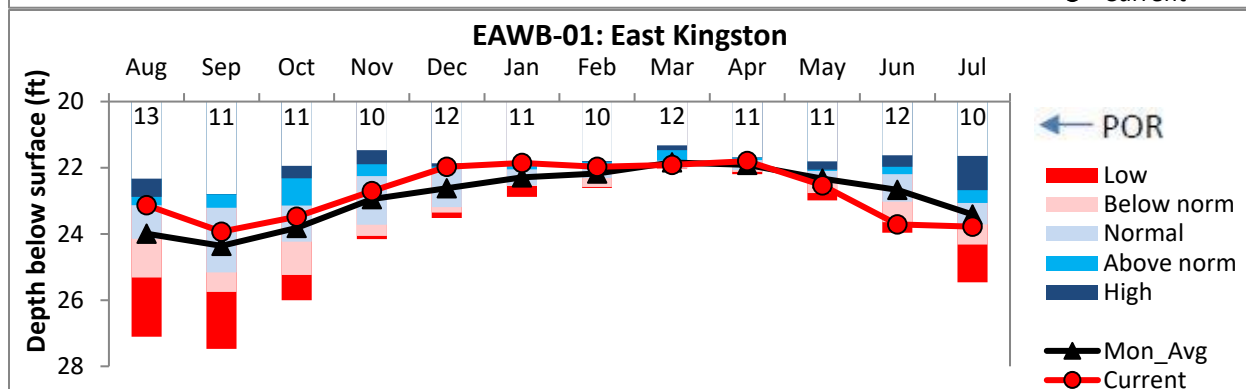
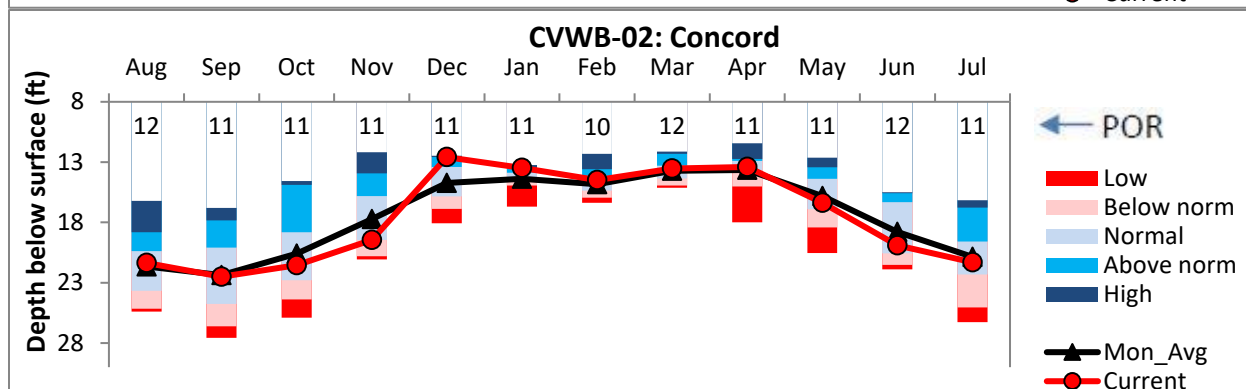
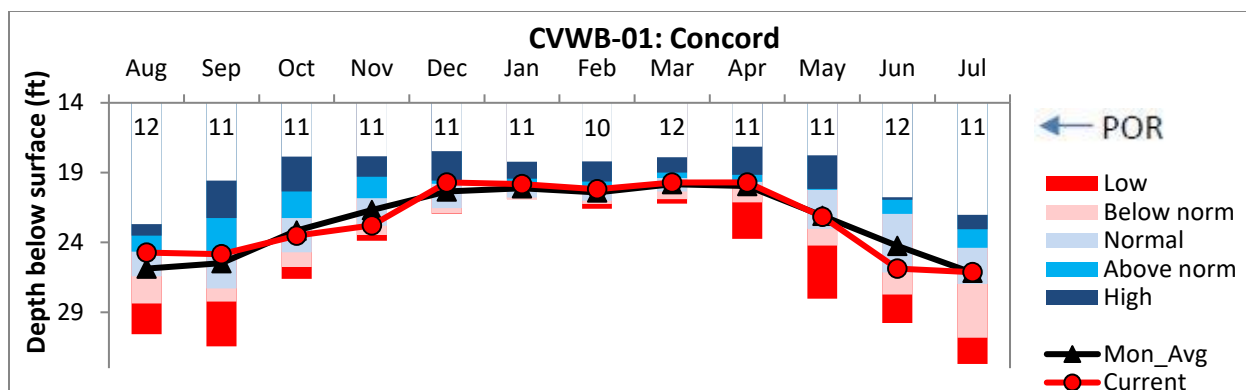


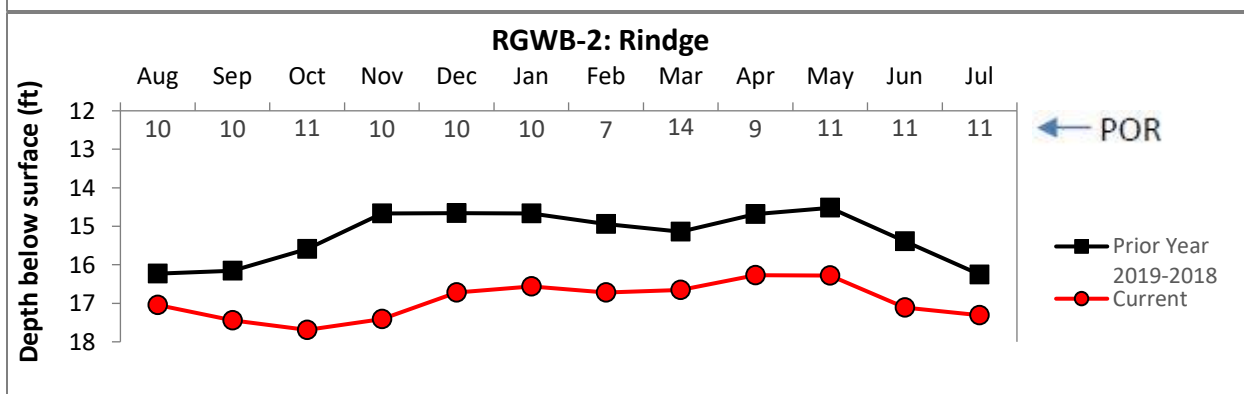
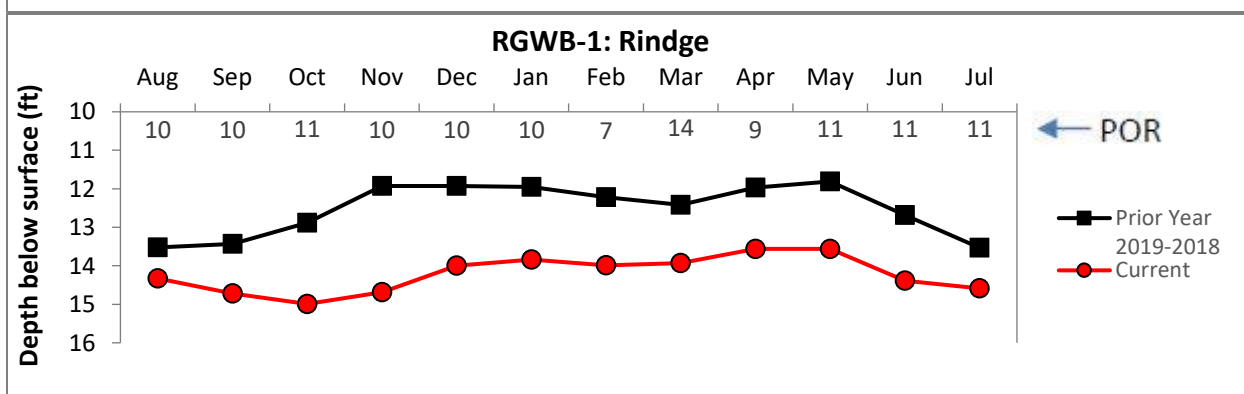
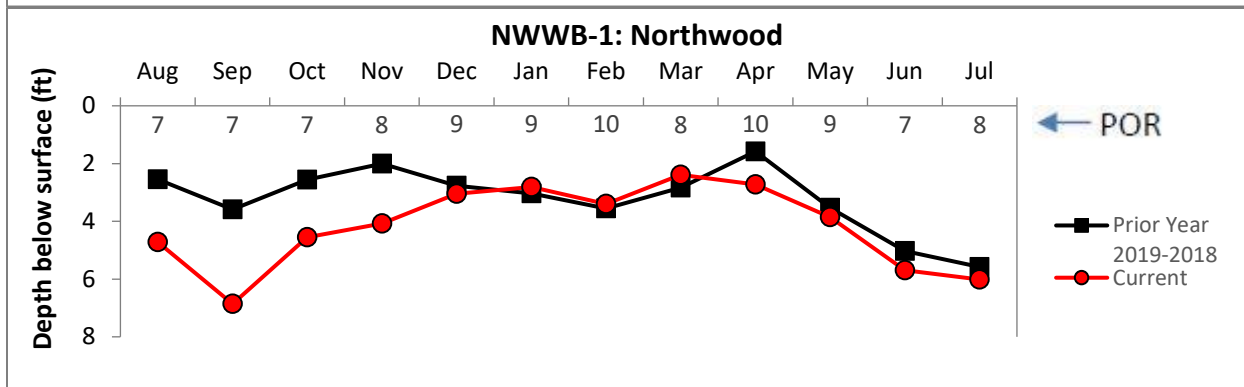
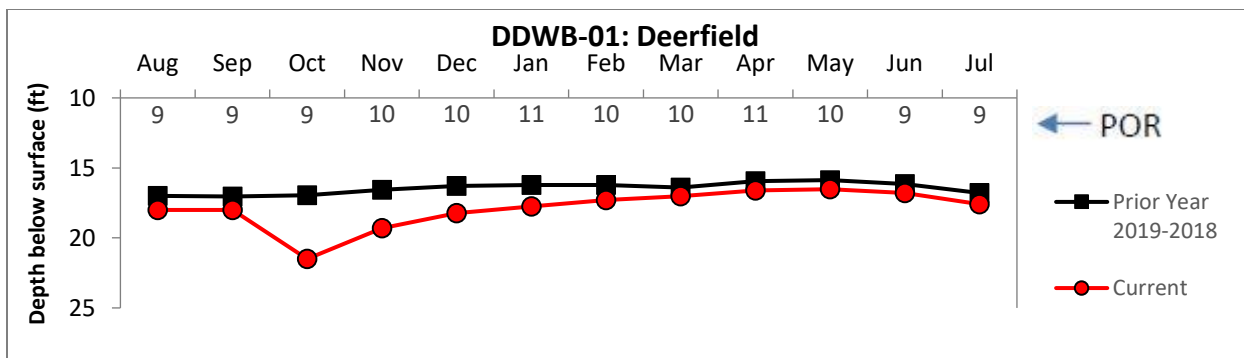




BEDROCK WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)







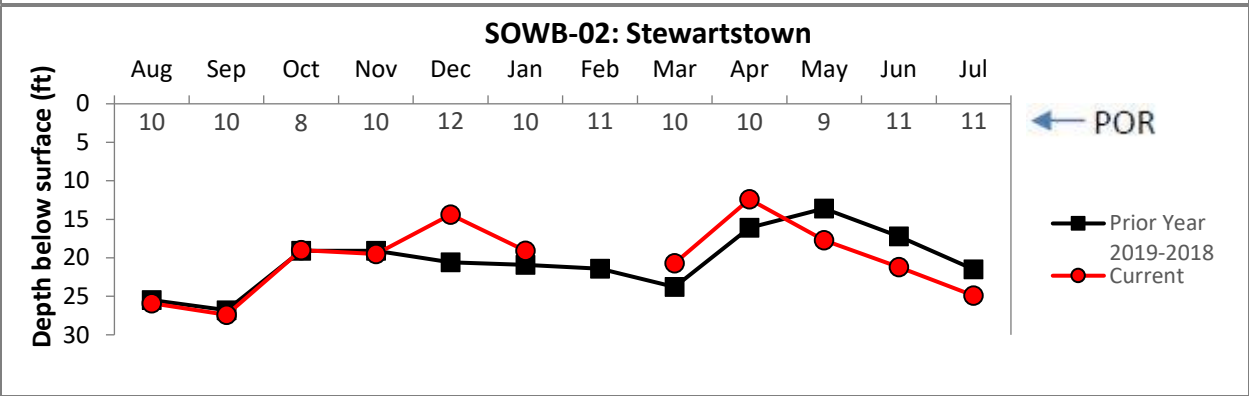
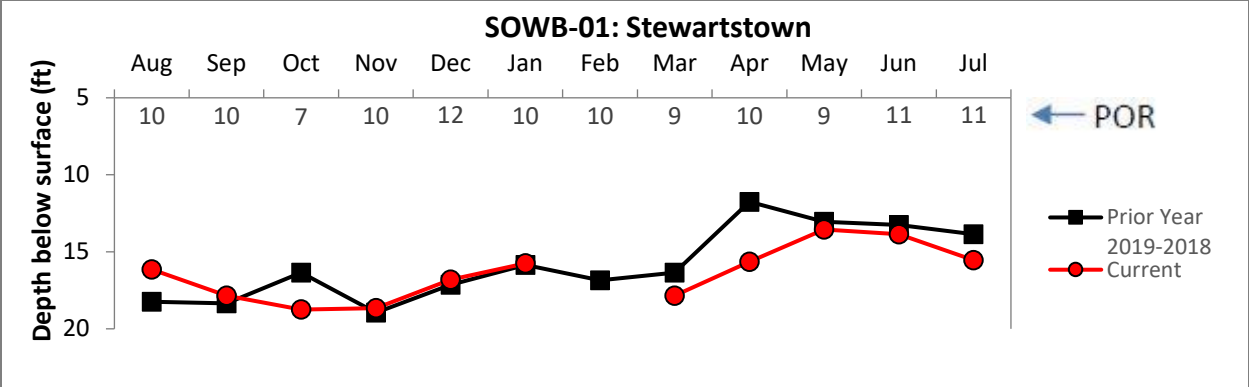


Table 1. Summary of groundwater levels sorted by region (dark blue – high, blue – above normal, light blue – normal, pink – below normal, red – low).

Well	Town	Well type	Screen/ open Interval (ft)	Depth to Water (ft)	Monthly Average (ft)	Current Status	Departure from Avg. (ft)	No. of meas.
ADW-14	Albany	Overburden	77.5-79.5	6.56	6.46	Normal	-0.1	25
ADW-15	Albany	Overburden	16-18	8.48	8.35	Normal	-0.13	25
BAW-10	Barnstead	Overburden	23-25	3.08	2.9	Normal	-0.18	23
BBW-53	Barrington	Overburden	21-23	5.13	-	Not Analyzed	-	3
CBW-34	Campton	Overburden	21-23	13.63	12.94	Below norm	-0.69	26
CTW-73	Colebrook	Overburden	105-107	8.6	7.8	Low	-0.8	20
CVW-02.1	Concord	Overburden	59.8-61.8	40.46	-	Not Analyzed	-	3
CVW-04	Concord	Overburden	25-27	18.3	17.43	Below norm	-0.87	55
DDW-46	Deerfield	Overburden	59.8-61.8	39.09	38.6	Below norm	-0.49	29
EPW-90	Epping	Overburden	39.45-40.7	28.33	27.84	Below norm	-0.49	14
FKW-01	Franklin	Overburden	45.5-47.5	12.58	11.23	Below norm	-1.35	54
GSW-75	Greenfield	Overburden	35.8-37.8	61.08	60.29	Normal	-0.79	27
LCW-01	Lancaster	Overburden	28-30	3.26	2.2	Low	-1.06	50
LLW-19	Lisbon	Overburden	49.8-52.3	14.79	14.22	Low	-0.57	27
NAW-218	Nashua	Overburden	66-68	28.6	28	Below norm	-0.6	55
NFW-53	New Durham	Overburden	28-30	19.78	19.35	Below norm	-0.43	25
NLW-01	New London	Overburden	40-42	10.73	10.18	Normal	-0.55	101
NPW-03	Newport	Overburden	40.5-42.5	8.04	6.51	Low	-1.53	26
NPW-06	Newport	Overburden	58-60	8.25	6.59	Low	-1.66	26
OXW-38	Ossipee	Overburden	0-22.55	35.43	34.96	Normal	-0.47	25
CVWB-01	Concord	Bedrock	470-480	26.13	26.17	Normal	0.04	11
CVWB-02	Concord	Bedrock	0-315	21.3	20.86	Normal	-0.44	11
DDWB-01	Deerfield	Bedrock	0-300	17.6	-	Not Analyzed	-	9
EAWB-01	East Kingston	Bedrock	463-473	23.78	23.41	Below norm	-0.37	10
EAWB-02	East Kingston	Bedrock	0-323	23.62	22.77	Below norm	-0.85	10
HTW-05	Hooksett	Bedrock	0-102.7	49.44	48.15	Below norm	-1.29	54
NWWB-01	Northwood	Bedrock	0-130	6.02	-	Not Analyzed	-	8
RGWB-01	Rindge	Bedrock	391-401	14.59	-	Not Analyzed	-	11
RGWB-02	Rindge	Bedrock	0-285	17.31	-	Not Analyzed	-	11
SOWB-01	Stewartstown	Bedrock	443-453	15.55	-	Not Analyzed	-	11
SOWB-02	Stewartstown	Bedrock	0-303	24.9	-	Not Analyzed	-	11